



Total Petroleum Services

Tel: 913-461-5985

Prepared RLT 1/11/2017

January 11, 2017

Report for Sac and Fox Remedial Activities and Excavation Update

Current Excavation

Tank 2 middle tank removal complete. Excavation of additional gravel back fill will continue in preparation for new tank installation.

Excavated gravel back fill not remaining to date in pit is stock piled on a plastic berm to retain any accumulated liquid during storage for disposal.

Total excavated gravel backfill in containment now is approximately 450 to 500 ton.

Remaining excavated gravel to be removed approximately 100 to 150 ton.

The intent was to reuse this back fill should the Photo Ionization Detector (PID) field screenings reflect the gravel is not impacted above 100 ppm Total Petroleum Hydrocarbons (TPH) **or beyond Tier 2 Non-Residential Default Target Levels (NRDTL) if full analysis is deemed appropriate to make that determination.**

At the time of this writing analytical results are available from stock piled back fill gravel from the tank pit sitting in outdoor containment and the results indicate this material may **NOT** be reused due to readings in **excess** of Tier 2 (NRDTL).

Tank Pit sampling is complete and samples were delivered to Pace Analytical for full results January 11, 2017 evening. Results will be available in approximately 10 days.

PID Readings

Target factor of 20 ppm was our original screening factor based on a base reading at the edge of the property. However, after further discussion it was determined 100 ppm would be a more appropriate screening factor and more closely relate to an actual sample analytic result. However, the actual results of the gravel samples did not bear out this assumption as the results indicate below.



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Analytical Results

Table 1.0 Soil Analytical Results
Sac and Fox Truck Stop
1346 US 75 Highway
Powhattan, KS

Sample Date	Sample ID	Field Screening (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Zylenee (mg/kg)	Total BTEX	Naphthalene (mg/kg)	MtBE (mg/kg)	TPH LRH (≥C5 - <C9) (mg/kg)	TPH MRH (≥C9 - <C19) (mg/kg)	TPH HRH (≥19 - <C35) (mg/kg)	Analytical Methods
Tier 2 RSK, Soil Pathway - Non-Residential			28.2	29,800	145	1,410	-	64.7	1,050	950	350	27,500	LR/MR 8015C HR 8260
Tier 2 RSK, Soil to Ground Water - Non-Residential			0.168	51.2	65.6	809	-	0.659	1.66	150	150	13,000	LR/MR 8015C HR 8260
1/4/2017	Grvl SL Fill - 01	0.3	ND	ND	ND	ND	-	0.87	ND	ND	61.8	24.1	8260/OA1
1/4/2017	Grvl SL Fill - 02	59.5	0.0925	0.804	0.313	19	-	3.53	ND	ND	280	42.4	8260/OA1
1/10/2017	West Wall (Near West Dispenser)	95.7	Pndg	Pndg	Pndg	Pndg	-	Pndg	Pndg	Pndg	Pndg	Pndg	
1/10/2017	North Wall (NE C of Excavation)	2,751	Pndg	Pndg	Pndg	Pndg	-	Pndg	Pndg	Pndg	Pndg	Pndg	
1/10/2017	Bottom 1 (Center of Failed Tank)	36.7	Pndg	Pndg	Pndg	Pndg	-	Pndg	Pndg	Pndg	Pndg	Pndg	
1/10/2017	Bottom 2 (East end of Failed Tank)	3,657	Pndg	Pndg	Pndg	Pndg	-	Pndg	Pndg	Pndg	Pndg	Pndg	
Field screening samples analyzed in the field with a photoionization detector								ND - Non Detect NM - Not Measured PNDG - Analytical Pending at Lab Values in Bold Exceed Tier 2 RSKs RSK - Risk-Based Standards for Kansas as Listed in the RSK Policy #BER-041 Dated September 1, 2015					
TPH - Total Petroleum Hydrocarbons LRH - Low Range Hydrocarbons MRH - Medium Range Hydrocarbons HRH - High Range Hydrocarbons													



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Recommendations

Based on the actual analytical results it appears that back fill rock lower in the pile contains heavier contamination as indicated by the results of Gravel SL – Fill 2.

It may be possible to stir this gravel and allow for material currently covered by top layers to be exposed to the elements and potentially gas off to a level which can be measured by new analytical and found to be under Tier 2 RSK Soil to Ground Water Levels. If MAC Corporation would like to try this, then we would agree and then retest to determine if the levels have been reduced to acceptable parameters.

I know MAC would like to get the new tank delivered and start placement. However, it may take some time for the exposed gravel to come into compliance. That being said, it will also require additional samples adding cost to the project especially if we go for a 2 day turn around. Otherwise the standard turn for lab samples is 7-10 days. However, the added cost for analytical will be miniscule compared to disposing of all that gravel and then having to bring in new gravel.

Regarding the soil to the east of the tank pit. Based solely on the PID readings at this time, it appears soil will be excavated moving east within the existing piping scheme. We will be able to check PID readings as we go along so no more soil will be exposed than necessary.

It is still our contention that regardless of contaminate levels, it would be economically devastating to the truck stop to continue excavation in an easterly direction effectively closing the truck stop portion of the station. I mentioned to Ms. Armbruster that should we find that contaminate levels in that area of the property are above acceptable limits, then we would need to do a cost analysis of closure of the truck stop side for excavation compared to other technologies that may be incorporated to clean up the property while allowing for full operation of the truck stop.

If anyone has comments or concerns, please communicate these and if Robert of MAC could let me know a tentative new schedule and if he can turn that gravel over for a few days then we can plan to get new samples.

Sincerely,

Robert L. Trump